

REMARKS

Claims 1-13 are herein cancelled and new claims 14-33 are added. The newly added claims are fully supported by the original claims and specification. New claims 14, 24 and 31 are in independent form. In particular the claims are fully supported by the examples on pages 8-19. No new matter has been added.

Claims 7 and 8 were objected as contain the non-italicized Latin names. Claims 7 and 8 have been cancelled. For the Examiner's information, Applicants' have italicized all Latin names in the new claims.

Claims 1-13 were rejected under 35 U.S.C. 112, second paragraph, for the reasons set forth on pages 2-4 of the Office Action.

Claims 1-13 have been cancelled.

Claims 1-8 and 11-13 were rejected under 35 U.S.C. 102(b) as being anticipated by Hatanaka *et al.* [IDS-AP] for the reasons set forth on pages 4-5 of the Office Action.

Applicants' invention is directed to a process for the cryo-preservation of a primary explant. The crux of Applicants' invention is their discovery that by using primary explants (*i.e.* plant tissue that has been subjected to an induction medium for a time sufficient to induce a primary regenerating tissue, but not a somatic embryo) regeneration rates are increased, while decreasing the percentage of negative effects caused by cryo-preservation, such as, somaclonal variations and other abnormalities.

Hatanaka *et al.* does not teach the cryo-preservation of a primary explant as defined by the newly submitted claims. Furthermore, Hatanaka fails to suggest that by culturing primary explants the rate of regeneration could be increased while minimizing the negative effects associated with cryo-preservation.

Claims 1-7 and 12 were rejected under 35 U.S.C. 102(b) as being anticipated by Lecouteux *et al.* [IDS-AQ] for the reasons set forth on pages 5-6 of the Office Action. Applicants traverse.

Lecouteux *et al.* is directed to the cryo-preservation of carrot somatic embryos. Applicants' invention as presently claimed does not cover the cryo-preservation of somatic embryos. Applicants' invention is based on their unexpected discovery of the advantages of using plant tissue that has been subjected to induction medium, but has not yet formed somatic embryos. Lecouteux *et al.* fails to teach the Applicants' invention and therefore, it is respectfully requested that this rejection be withdrawn.

Claims 1-7, 9 and 11-13 were rejected under 35 U.S.C. 102(b) as being anticipated by Pence *et al.* [IDS-U] for the reasons set forth on pages 6-7 of the Office Action.

Pence *et al.* is directed to the cryo-preservation of zygotic embryos. Pence does not teach the cryo-preservation of a primary explant as presently defined in the new claims. The advantages of Applicants' invention are not disclosed in Pence *et al.* and therefore, this rejection should also be withdrawn.

The claims were rejected under 35 U.S.C. 102(b) as being anticipated by Tessereau *et al.* [IDS-AR] for the reasons set forth on pages 7-8 of the Office Action. Applicants traverse.

Tessereau *et al.* is directed to the cryopreservation of somatic embryos. Applicants' invention as presently claimed is not directed to the cryo-preservation of somatic embryos. Applicants' process of cryo-preservation has increased regeneration rates and lower somaclonal variations compared to the prior art methods. Applicants' have discovered that by using a primary explant instead of somatic embryos, zygotic embryos, or other plant tissues there are unexpected benefits.

Because Tessereau *et al.* does not teach all of the elements of Applicants' invention, the 35 U.S.C. 102(b) rejection should be withdrawn.

Claims 1-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hatanaka *et al.* [IDS-AP], in view of Tessereau *et al.* [IDS-AR], Pence *et al.* [U], Lecouteux *et al.* [IDS-AQ] and Abdelnour-Esquivel *et al.* [IDS-AO] for the reasons set forth on pages 8-10 of the Office Action.

As discussed above, none of the references cited by the Examiner disclose or suggest that a primary explant should be used in the cryo-preservation process. In fact they each teach that a somatic or zygotic embryo should be used and not a primary explant as defined by the present claims.

Applicants' invention, in contrast, is directed to a process of cryo-preservation using a primary explant, which comprises a plant tissue that has been subjected to an induction medium for a time sufficient to induce a primary regenerating tissue, but not a somatic embryo.

Applicants discovered and disclose in the specification that by using a primary explant instead of a somatic or zygotic embryo as taught by the prior art, one is able to increase the rate of successful regeneration while lowering the percentage of somaclonal variation inherent in cryo-preservation of plants. This is an unexpected result. Nothing in the

references cited by the Examiner teach or suggest these advantages discovered by the Inventors.

Because none of the references together or alone teach or suggest the use of a primary explant in a process of cryo-preservation, nor the unexpected advantages associated with using a primary explant instead of somatic or zygotic embryos, Applicants' invention is not made obvious.

In view of the foregoing, it is believed that the entire application is now in condition for allowance, early notice of which would be appreciated. Should any issues remain, a personal or telephonic interview is respectfully requested to discuss the same in order to expedite the allowance of all the claims in this application.

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Respectfully submitted,

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